

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of :  
Koji SATO et al. :  
Serial No. NEW : **Attn: Application Branch**  
Filed April 6, 2001 : **Attorney Docket No. 2001\_0406**

PERMANENT MAGNET MOTOR AND  
ROTOR THEREOF  
(Rule 1.53(b) Divisional  
of Serial No. 09/396,420,  
Filed September 15, 1999)

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**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents,  
Washington, DC 20231

Sir:

Kindly amend the above-identified application as follows:

**IN THE TITLE**

Please replace the title of the invention with the following:

--PERMANENT MAGNET MOTOR AND ROTOR THEREOF

This is a divisional application of Serial No. 09/396,420, filed September 15, 1999.--

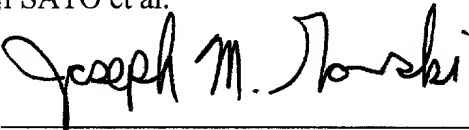
**REMARKS**

Please enter the above amendment prior to consideration of the merits of the present application.

A copy of the amended portion of the specification with changes marked therein is attached and entitled "**Version with markings to show changes made.**"

Respectfully submitted,

Koji SATO et al.

By 

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THE COMMISSIONER IS AUTHORIZED  
TO CHARGE ANY DEFICIENCY IN THE  
FEES FOR THIS PAPER TO DEPOSIT  
ACCOUNT NO. 23-0975

# PERMANENT MAGNET MOTOR AND ROTOR THEREOF

This is a divisional app. of SN 09/396,420, filed 9/15/99

## BACKGROUND OF THE INVENTION

5 The present invention relates to a multipolar-magnetized cylindrical permanent magnet to be used as a rotor of a permanent magnet motor or a synchronous motor, such as servomotors and spindle motors, and further relates to a permanent magnet motor including the rotor. More particularly, the invention relates to a multipolar-magnetized cylindrical permanent magnet having magnetic anisotropy in a single diametrical direction, or in a single direction perpendicular to the axis of the cylindrical magnet, as well as to a permanent magnet motor including the magnet as the rotor.

10 As is well known, permanent magnets having magnetic anisotropy, i.e. permanent magnets capable of being more easily magnetized in a specific direction than in other directions, are widely employed as a part of loudspeakers, electric motors, metering instruments and other electric apparatuses. Such an anisotropic permanent magnet is prepared from a permanent magnet material having crystalline magnetic anisotropy, such as certain hard ferrites and rare earth element-containing alloys. The material is pulverized into a powder of fine particles, followed by compression molding of the powder within a magnetic field (referred to as "in-field molding" hereinafter) to provide a powder compact which is followed by sintering of the powder compact. In the in-field molding of the magnetic powder, the magnetic particles are each oriented relative to the easy magnetization axis of the magnet crystallites as a consequence of the magnetic field applied, so that the resultant sintered magnet also has magnetic anisotropy in the direction of the magnetic field applied to the powder under compression during the in-field molding.

**Version with Markings to  
Show Changes Made**